


LLNL Environmental Restoration Division (ERD)
Standard Operating Procedure (SOP)

**ERD SOP 5.15: Livermore Site Routine Groundwater Sampling
Plan Preparation—Revision: 0**

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1.0 PURPOSE

The purpose of this SOP procedure is to set forth steps by which the Routine Groundwater Sampling Plan is prepared.

2.0 APPLICABILITY

This SOP procedure applies to the development of the Livermore Site Routine Groundwater Sampling Plan for the Environmental Restoration Division (ERD) and Water Guidance and Monitoring (WGMG).

3.0 REFERENCES

Not applicable.

4.0 DEFINITIONS

Not applicable.

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5.0 RESPONSIBILITIES

5.1 Division Leader (DL)

The DL's responsibility is to ensure that all activities performed by ERD at the Livermore Site and Site 300 are performed safely and comply with all pertinent regulations and procedures, and provide the necessary equipment and resources to accomplish the tasks described in this procedure.

5.2 Data Management Team (DMT)

The DMT, in affiliation with the Sampling Coordinator (SC), maintains an electronic record of the sampling plan, its implementation, and the receipt of resulting analytical data. The DMT runs the Cost-Effective Sampling (CES) Algorithm for VOCs (see SOP 5.20, "Cost-Effective Sampling (CES) Algorithm Preparation") at the request of the SC. The DMT provides, upon request, reports of the sampling plan, the status of particular planned or collected samples, and the status and/or content of resulting analytical data. Furthermore, the DMT supports the Subproject Leader (SL), SC, and field technicians by supplying clarification of sample identification and requested analysis codes used on CoC forms, as well as assistance in analyzing and trending sampling results upon request.

5.3 Hydrogeologist (HG)

The HG is responsible for helping the SL determine borehole/well locations and design, hydrostratigraphic analysis, and planning/evaluation of hydraulic tests.

5.4 Sampling Coordinator (SC)

Once well development is complete and the SC is notified, the SC will add the well to the Routine Ground Water Sampling Schedule. The technical information required for purging wells is also provided by the SC in the Well Specification Table.

5.5 Statistician (ST)

The ST works with the algorithm expert developing the algorithm.

5.6 Subproject Leader (SL)

The SLs are responsible for providing the SC with input for the sampling plan, reviewing the sampling plan, instructing the SC to revise the frequency of the sampling schedule, and adding (or deleting) wells or analytes to the sampling plan.

6.0 PROCEDURES

6.1 Step-by-Step Sampling Plan Development

- 6.1. Six weeks prior to the new quarter DMT provides the previous quarter location list to the SL or their designee. The SL reviews and updates the location list and returns it to the DMT.

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The DMT updates the locgroups table to reflect changes to the location list and notifies all concerned when it is completed.

The Cost Effective Sampling Algorithm (CES) is run using the updated location list. See SOP 5.20, “Cost-Effective Sampling Algorithm Preparation.”

The SL reviews the CES Algorithm recommendations approved by the DMT and QC Chemist. The SL overrides algorithm recommendations as necessary and sends the updated CES Algorithm recommendations to the SC.

The SC reviews the results of the adjusted CES algorithm recommendations for each monitor well and piezometer with the SL.

The SL sends final recommendations to SC and DMT.

- 6.2 Compile Draft Quarterly Sampling Plan. The Livermore and Site 300 SCs develop the routine quarterly sampling plans. The Livermore Site SC constructs the draft quarterly sampling plan using input from the SL, the recommendations from the CES output, and those exceptions described in Section 6.4.7. The Site 300 SC uses the sampling plan templates housed within the SPACT tables of the EPDDATA database. The templates store information pertinent to the sampling of monitoring wells and serve as a starting point. The SCs develop the ORAD/WGMG sampling schedules using written information provided by the WGMG analysts.

- 6.3 Distribute Draft Sampling Plan. The Site 300 SC distributes the draft sampling plan to the SLs, QC Chemists, and WGMG analysts. A two week review period is given the SLs and analysts to provide input and request changes to the draft plan. The SPACT templates are then updated according to input received and a final plan is developed.

- 6.4 Update Sampling Plan Tables. The appropriate electronic records are updated by DMT to reflect the final recommendation in the following tables: plantmp_sample, plantmp_requal, location, and locgroups.

Using sampling plan template menu items, “create a sampling plan for the current quarter”.

Create a routine sampling schedule report for the current quarter using the menu item “Sampling Plan Tables.” Select appropriate records by identifying templates. For “LLNL,” choose sort option “by Location with Last Sampled Date.” For Site 300, choose sort option by area 2.

When the Routine Sampling Plan is final, create an archived sampling plan for the current quarter using the “Sampling Archive Table” where area1 is LLNL and report is sorted by location including latest sampled date.

Note: The sampling plan must be archived before any sampling is done.

Place an electronic version of the final sampling plan on a server available to project staff.

The DMT notifies appropriate personnel that the Routine Groundwater Sampling Schedule is completed for the quarter and available.

- 6.5 Final Sampling Plan. The SC distributes the final sampling plan to SLs, QC Chemists, and WGMG analysts. The SC should be informed of any errors no later than one week before the quarter begins, if not, the plan is electronically recorded and archived in SPACT. The final SPACT plan is implemented when the new quarter begins.

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- 6.6 Electronic Sampling Logs. Electronically generated ground water sampling logs may be produced from the final SPACT plan and provided to the sampling personnel at the beginning of a sampling quarter.
- 6.7 Revise Final Sampling Plan. A Request for Sampling Schedule Change form must be completed by a SL or analyst to modify the final SPACT plan after the quarter begins. The requested change will result in modifying the SPACT templates and re-producing the sampling plan and/or ground water sampling logs. Modification to the sampling plan is highly recommended during the draft development phase and not after it has been finalized.

7.0 QUALITY ASSURANCE RECORDS

- 7.1 Copy of the Sampling Plan

8.0 ATTACHMENTS

Not applicable.